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ABSTRACT

Union catalogs have yet to reach their full potential on the national level or in California. The National Union Catalog and the Union List of Serials in the Libraries of the United States and Canada, although monumental efforts, are far from comprehensive. A survey found that California exhibits most of the problems involved in union catalog efforts anywhere. The state library has a union catalog of 81 participating libraries and is compiling a union list of the periodicals of over 1000 libraries. The University of California compiles union catalogs and lists for its campuses. Union catalogs are also produced in many of the state's 21 public library systems. Further cooperation is planned between different types of libraries. To make optimum use of these diverse efforts, coordination at the state level is needed. (PF)

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UNION CATALOGS AND LISTS: ASPECTS OF NATIONAL AND CALIFORNIA COVERAGE

by

CLARA DOWNS KELLER

CONTENTS

INTRODUCTION 2
- STATEMENT OF THE PROBLEM 3
- IMPORTANCE OF THE STUDY 3
- LIMITATIONS OF THE STUDY 4
- PROCEDURE IN GATHERING DATA 4
- DEFINITION OF TERMS 4

REVIEW OF THE LITERATURE 5
- INTERNATIONAL STUDIES AND SURVEYS OF UNION CATALOGS 5
- UNION CATALOGS AND LISTS IN THE UNITED STATES 6
- UNION CATALOGS AND LISTS IN CALIFORNIA 8
- OTHER REGIONAL AND STATE UNION CATALOGS AND LISTS 10

UNION CATALOGS AND LISTS AT THE NATIONAL LEVEL 12
- THE NATIONAL UNION CATALOG 12
- SATELLITES OF THE NATIONAL UNION CATALOG 15
- NATIONAL UNION LISTS OF SERIALS 17
- PROSPECTS FOR FUTURE EXPANSION OF NATIONAL UNION CATALOGS AND LISTS 18

UNION CATALOGS AND LISTS IN CALIFORNIA 20
- THE CALIFORNIA UNION CATALOG 21
- THE CALIFORNIA UNION LIST OF PERIODICALS 22
- PROJECTS AT THE UNIVERSITY OF CALIFORNIA 23
- UNION CATALOGS AND LISTS IN CALIFORNIA'S PUBLIC LIBRARY SYSTEMS 23
- COOPERATION BETWEEN DIFFERENT TYPES OF LIBRARIES 26
- OTHER UNION CATALOGS AND LISTS IN CALIFORNIA 28

SUMMARY AND CONCLUSIONS 30

REFERENCES 32

APPENDIXES 37
- A. CALIFORNIA LIBRARIES CONTRIBUTING TO THE CURRENT NATIONAL UNION CATALOG 37
- B. PUBLIC LIBRARIES IN CALIFORNIA CONTRIBUTING TO THE CALIFORNIA UNION CATALOG 38

VITA 40

INTRODUCTION

Union catalogs and union lists represent important aspects of the continuing quest for bibliographic control of the world's literature. By consolidating information as to the holdings of two or more libraries, such catalogs and lists make this knowledge more widely available, and improve access to the resources they record.

Union catalogs and lists serve a variety of functions in libraries, both in the United States and abroad, most notably facilitating such cooperative ventures as interlibrary loans and coordinated acquisition policies. Still only dreamed of is the universal union record, which would cover the total holdings of the world's libraries. What does exist today is an array of national, regional, state and local union catalogs and lists, offering excellent coverage for some geographical and subject areas, while providing little or no coverage for others.

The twentieth century has seen considerable experimentation in the development of union catalogs and lists at all levels in the United States. Coordination of these efforts to provide comprehensive, but not overlapping, coverage of the nation's library resources has been a source of professional concern for some time. Many leaders in the library field feel that, ideally, planning should originate at the national level, with a network of bibliographic coverage spreading out to encompass all areas of the country. Beginning with a strong national union catalog to cover major research holdings of U.S. libraries, subsets of this information could be expanded to meet regional, state, and local needs.

Certainly, technological advances within the last decade, particularly in the use of computers to store and disseminate data, make the concept of a national bibliographic network a realistic possibility. At the Library of Congress, development of Machine-Readable Cataloging (MARC) on magnetic tape, and the RECON project for retrospective conversion of bibliographic records, hold promise of greatly increasing the national store of available data. The impediments to development of a comprehensive bibliographic network stem from lack of funding and direction at the national level; however, the recent establishment of the National Commission on Libraries and Information Science offers some hope that this situation may eventually be rectified.

There is an alternative to bibliographic control originating at the national level in the United States. Beginning at the bottom of the pyramid rather than the top, efforts can be made to consolidate coverage provided by existing union catalogs and lists. Such a reverse procedure, while theoretically more difficult to control, would permit exploitation of the many regional, state, and local efforts already established. The body of information and experience presently available in projects throughout the country could be extended to meet the needs of other areas, and finally to provide the desired nationwide coverage. For this approach to be successful, the need for national planning does not disappear, but rather takes the form of coordinating and standardizing the resulting products.

In actual practice, the ultimate solution to problems of identifying the nation's bibliographic resources may be found in a combination of the two approaches suggested above. If national planners could create a centrally controlled network which built on existing strengths, while correcting weaknesses of present coverage, the advantages of both systems might be realized. It may be possible, by examining certain aspects of the development of union catalogs and lists in a limited area, to advance understanding of the total problem and its best solution.

STATEMENT OF THE PROBLEM

It is the purpose of this study (1) to survey the present pattern of union catalogs and lists as they exist or are being developed, both at the national level and within the state of California; (2) to evaluate this pattern in terms of its adequacy in meeting California's local and state needs; and (3) to determine what pattern might eventually be developed to serve both California and national needs for a uniform, comprehensive network of bibliographic coverage.

IMPORTANCE OF THE STUDY

Improving knowledge of and access to library resources is a continuing concern, particularly in a democratic society. The ultimate goal of worldwide bibliographic control is still far in the future; however, progress in achieving this ideal is realized in the successful completion of projects on a more modest scale.

The identification of all library resources within the United States would be a major breakthrough. "In the perspective of history, there is no reasonable doubt that effective national bibliographic organization must precede international or universal coverage. If universal bibliography is ever to be achieved, it must be grounded upon the work of individual countries."[1]

Any efforts which bring a U.S. network of bibliographic information closer to reality are worthy of serious consideration. The body of knowledge and experience already gained through existing union catalogs and lists, from the national level on down, represents a valuable resource for future planning. Whether the ultimate solution to a national bibliography will begin at the national level, or through consolidation of local, state, and regional efforts, is yet to be determined. In any case, study of existing patterns of coverage should be of great significance in establishing larger bibliographic networks which are responsive to the needs of library users at all levels.

Within the state of California can be found, in microcosm, many of the elements which must be considered in planning for larger units of bibliographic coverage. Through identification of these elements, it may be possible to extrapolate viable solutions to be applied either in other areas of the country or at the national level.

LIMITATIONS OF THE STUDY

The primary concern in this study was with union catalogs and lists as they exist or are being planned within the state of California. Significant projects or studies relating to union catalogs and lists in other areas of the United States and at the national level were also considered. Historical background material relating to union catalogs and lists was considered only to the extent necessary for an understanding of their present state and future potential for development.

The goal of ultimate national coverage was an underlying assumption of this study, and this was the limit to which its conclusions were carried. Possibilities for international bibliographic coverage, however desirable, were beyond the scope of the present investigation.

PROCEDURE IN GATHERING DATA

In accumulating data, the following approaches were utilized: (1) literature search to identify relevant studies and discussions of union catalogs and lists in the United States from 1942 to the present; (2) study of the present form and coverage of the National Union Catalog, the Union List of Serials in Libraries of the United States and Canada, and New Serial Titles; (3) study of recently published project findings relating to existing or proposed union catalog coverage in California and other areas of the United States; (4) identification of existing union catalogs and lists within the state of California; (5) examination of the California Union Catalog at the State Library and interviews with supervisory personnel; (6) interviews with the directors of two California projects concerned with computerized production of book form union catalogs and lists; (7) questionnaire-survey of public library systems in California to determine the forms and uses of union catalogs and lists at this level; and (8) survey of union catalog and list activity in cooperative networks of different types of libraries in California.

DEFINITION OF TERMS

The following definitions were obtained from the A.L.A. Glossary of Library Terms:

> [A union catalog is] an author or a subject catalog of all the books, or a selection of books, in a group of libraries, covering books in all fields, or limited by subject or type of material; generally established by cooperative effort.
>
> [A union list is] a complete record of the holdings for a given group of libraries of material of a given type, in a certain field, or on a particular subject.[2]

In actual practice, most union catalogs have been limited to author or main entries. The majority of union lists have been devoted to serial publications.

REVIEW OF THE LITERATURE

INTERNATIONAL STUDIES AND SURVEYS OF UNION CATALOGS

While not directly within the province of this paper, certain international studies of union catalogs should be mentioned for their usefulness in providing general background and perspective to problems at the national and regional levels.

A major study of union catalogs appeared in 1956. L. Brummel's Union Catalogues; Their Problems and Organization was "designed to provide both an outline of past studies and experience, and practical guidance for the preparation of future union catalogues."[3] Sponsored by the United Nations Educational, Scientific and Cultural Organization (UNESCO), Brummel's work included historical notes on union catalog development in the United States and six other countries. The different types of union catalogs (general, special, local, regional, and national) and their functions were analyzed. Principles and methods of organization were given detailed consideration. An extensive list of literature cited was provided.

In 1961, Brummel and Egger compiled a Guide to Union Catalogues and International Loan Centers. Published in English and French under the auspices of the International Federation of Library Associations (IFLA), the Guide was "designed to aid librarians and other interested persons in securing pertinent information through a comprehensive survey of existing union catalogues and international loan centers the world over."[4] Tables were included to show the state of union card catalogs in twenty-five countries, and information on approximately 250 printed union catalogs was given. Union catalogs and libraries with teletype communications were also listed.

"Technique of Union Catalogues: A Practical Guide," by Silvère Willemin, again represented the international point of view in 1966. Willemin's work, "designed to outline the advances made over recent years in establishing union catalogues,"[5] was an updating of Brummel's 1956 study. Practical advice was given as to the organization, constitution, and functioning of a union catalog. Details such as the choice of libraries to be included, types of material to be listed, preparation and filing of entries were all considered, with emphasis placed on union card catalogs.

"Select Bibliography on Union Catalogues and International Loans" was compiled by Joachim Wieder in 1968. A total of seventy-nine references to literature "of fundamental importance and of general interest" were listed.[6] The period from 1925 through 1966 was covered, with most references drawn from the 1950s and early 1960s. Citations from western European and United

States literature were included.

A brief recent survey of three methods of producing union catalogs, "How to Make a Union Catalogue," by Patrick Quigg, compared manual, computerized, and photographic production, and concluded that "the best hope for the future would seem to lie in the manipulative capability of the computerised catalogue."[7]

UNION CATALOGS AND LISTS IN THE UNITED STATES

The first truly definitive study of union catalogs in this country was published in 1942. Union Catalogs in the United States, sponsored by the ALA and edited by Robert B. Downs, appeared at the end of a period (from 1930 to 1941) of rapid development of regional union catalogs in the United States. This growth had been stimulated by the availability of a large body of free labor from federal government relief agencies during the depression. Union Catalogs in the United States had as its aim "to cover the history, current status, and future prospects of various types of union catalogs for American libraries."[8]

Four contributors surveyed different facets of union catalog development. In "Administrative, Fiscal, and Quantitative Aspects of the Regional Union Catalog," LeRoy C. Merritt discussed the concept of union catalogs, costs of establishment and maintenance, problems of organization and administration, and possible avenues for future development. He also provided a quantitative picture of resources in American libraries. In "Regional Union Catalogs: A Study of Services Actual and Potential," John P. Stone analyzed these services by such means as surveying union catalog patrons and their purposes, studying types and classes of material requested, and comparing regional and national union catalog services. George A. Schwegmann, Jr., in "The National Union Catalog in the Library of Congress," reviewed the history, problems, and future plans of the National Union Catalog. Arthur B. Berthold provided a "Manual of Union Catalog Administration," and also the final section, "Directory of Union Catalogs in the United States."

In analyzing the findings of this comprehensive survey of union catalogs, Downs stated: "If properly coordinated and developed, union catalogs can be an extremely valuable instrument for facilitating maximum use of each region's resources, and for stimulating the intelligent growth of these resources, but some guidance and direction from a national viewpoint would be highly desirable for the future development of these catalogs."[9]

No further studies of the magnitude of Union Catalogs in the United States have appeared. Changes and progress since 1942 have been largely documented in discussions on a more modest scale.

In 1949, Downs, then Acting Chief of the Union Catalog Division at the Library of Congress, discussed proposals for the future of the National Union Catalog.[10] Reproduction of the catalog in published or other form, after

bringing filing up to date and retyping unsatisfactory entries, was advocated. In addition, it was suggested that the National Union Catalog be made more comprehensive by the inclusion of certain regional, state, and local union catalogs, and of important individual library catalogs (university, specialized research, and federal government libraries).

For background material on development of the National Union Catalog, two papers by John W. Cronin, director of the Processing Department at the Library of Congress, offer authoritative information. "The National Union and Library of Congress Catalogs: Problems and Prospects," published in 1964, includes a lucid account of the history of the National Union Catalog from its establishment in 1901 through development of the book catalogs for entries after 1956. Cronin strongly urged publication of the pre-1956 National Union Catalog, stating that it would be a "massive undertaking, but the benefits to be derived would be correspondingly great."[11] He also argued in favor of a subject approach to the National Union Catalog, calling it "urgently needed to meet the research needs of the future."[12] A revised and expanded version of Cronin's article appeared in Prospectus for the National Union Catalog, Pre-1956 Imprints in 1967.[13]

Volume 1 of The National Union Catalog, Pre-1956 Imprints included a "History of the National Union Catalog, Pre-1956 Imprints," written by Gordon Williams, chairman of the Subcommittee on the National Union Catalog, Resources and Technical Services Division, American Library Association.[14] Derived in large measure from Cronin's writings on the subject, this account was a more concise summary of factors leading up to publication of Pre-1956 Imprints.

A general survey of recent trends in union catalog development was provided by Yadwiga Kuncaitis in his Union Catalogs and Bibliographic Centers: A State-of-the-Art Review, published in 1968.[15] The literature on union catalogs and bibliographic centers was summarized, with thirty-two references given.

Union lists, particularly of serial publications, have been the subject of a number of discussions. A useful compilation indicating the scope of union list development, both in this country and abroad, was Ruth Freitag's Union Lists of Serials; A Bibliography.[16] Issued in 1964, this publication was an updating of the bibliography of union lists of serials, compiled by Daniel Haskell and Karl Brown, which appeared in the second edition of the Union List of Serials in Libraries of the United and Canada in 1943. In addition to separately published lists, citations of journal articles and parts of books were included when locations were indicated for the materials described.

Arrangement of Union Lists of Serials was geographical, with indexes provided for authors, editors or compilers, and for subjects. Many of the entries included annotations containing information as to their arrangement, number of serials listed, and number and location of contributing libraries.

Development of the Union List of Serials in Libraries of the United States and Canada was chronicled in the preface to the third edition by

Howard Rovelstad, chairman of the Joint Committee on the Union List of Serials.[17] Additional historical material, as well as a detailed analysis of the third edition, was given in the Final Report on the Third Edition of the Union List of Serials.[18] In her article, "The Union List of Serials: Third Edition,"[19] Field summarized the history, characteristics, and importance of the Union List of Serials.

In 1966, a study was undertaken by Kuhlman to evaluate the effectiveness of New Serial Titles as a comprehensive, current union list of serials that started publication after 1949.[20] A total of 769 questionnaires returned by U.S. and foreign libraries were analyzed as to satisfaction with the scope, contributors, locations, bibliographical listings, subject approach, and frequency of issue of New Serial Titles. Acceptance of the existing form was generally high, although recommendations were made for minor improvements in all of the above areas. On the basis of his findings, Kuhlman advocated: greater depth in the scope of New Serial Titles, selectively increased participation of libraries having important serials collections, and prompter bibliographical listing of new serial titles.

Problems and prospects for regional union lists of serials were discussed by Galvin in a 1964 article, "Regional Union Lists--Some Unanswered Questions."[21] Galvin felt that such lists were justified in most regions of the United States as supplements to the restricted coverage offered by the Union List of Serials and New Serial Titles. The questions he found unanswered involved the most effective composition of regional union lists: subjects, journals, and libraries to be included.

A 1971 article by Ellsworth, "The Academic Library Looks at Union Lists,"[22] examined the various types of union lists of serials (local, state, regional, special, and national) and stated the need for the individual library to establish guidelines for participation. The regional configuration was seen as providing greatest benefits to participants in terms of the expansion of resources available. Ultimately, however, it was felt that the regional union list must be capable of inclusion in a national plan for serials control.

Union list development was discussed recently by Sawyers. Her article, "Union List Development: Control of the Serial Literature,"[23] described progress toward establishing a computerized national union list of biomedical serial holdings, using the Medical Library Center of New York's Union Catalog of Medical Periodicals as its basis. The status of the National Serials Data Program, being developed by the three national libraries, was also described, with its relationship to the biomedical union list project defined.

UNION CATALOGS AND LISTS IN CALIFORNIA

The California Union Catalog, maintained in card form at the state library since 1909, has been the subject of a number of articles and reports. In 1960, Bruno, then Union Catalog Editor, described the functions and organ-

ization of "The California Union Catalog."[24] The following year, Melvin Oathout, Director of Technical Services at the State Library, wrote a more extensive article, "The Union Catalog at the California State Library."[25] Functions, routines, auxiliary files, staff and contributors were discussed. In addition, Oathout considered potential new services for the Union Catalog which included: regional resource planning, cooperative storage, and preparation of subject bibliographies.

"California State Library, Union Catalog Workshop" summarized proceedings of the workshop held in Sacramento on February 13-14, 1963. The workshop was to consider the feasibility of converting the California Union Catalog to "bound book volumes in the form of an Author's Index."[26] Creation of a master deck of machine cards was envisioned, with such by-products as individual library catalogs. The possibility of incorporating the project with a plan for centralized cataloging was also discussed.

Again in 1967, the idea of producing the California Union Catalog in book form was advanced. Catalogs in Book Form: A Research Study of Their Implications for the California State Library and the California Union Catalog, with a Design for Their Implementation was sponsored by the Institute of Library Research at the University of California. The study concluded that "the California State Library catalogs and the California Union Catalog should be produced in book form."[27] Conversion of existing records to machine-readable form was recommended; improved library service to the public libraries of the state was considered one of the major benefits which would accrue. Much of the study was concerned with detailed analyses of conversion methods and the cost factors involved.

In 1968, Eugene Pike, head of the Reference Section at the California State Library, reported on interlibrary loan developments.[28] His article included a discussion of the California Union Catalog, the monthly unlocated books list issued by the Union Catalog Section, and other ways that the state's interlibrary loan process might be improved. To reduce the burden on the National Union Catalog, the creation of more regional union catalogs by the machine merging of tapes of individual library catalogs was advocated.

A proposal for "The Organization of and the Union Catalog for a Bibliographic Center in Southern California" was advanced by William Geller, Director of the Los Angeles County Public Library, in 1961.[29] Use of the electronically produced book catalogs of the Los Angeles County Public Library was suggested as a model for a union catalog of the entire Southern California area. The reference value of such a catalog, its function in facilitating interlibrary loans, and possible future development of centralized processing, were cited as advantages.

Constance Lee, in charge of the Reader Services Bureau at the California State Library, discussed "Bibliographic Cooperation at the State Level" in 1966.[30] The state library was seen as the logical agency to coordinate bibliographic control within the state. Redefinition of the role of the California Union Catalog to cover specialized research, obscure and ephemeral materials was suggested, with a structure of library system and regional

union catalogs to provide comprehensive coverage of holdings within each area. While primary involvement would be among public libraries, eventual inclusion of special libraries and the libraries in the state systems of universities and colleges was seen as desirable.

OTHER REGIONAL AND STATE UNION CATALOGS AND LISTS

Some of the most interesting recent literature relating to the development of union catalogs and lists has emanated from studies and project reports for areas of the United States outside of California. While restricted in scope, the findings and conclusions reported in this literature have implications for planning, both in California and at the national level.

A Guide to Union Catalogs in the Southeastern States, published in 1965, presented information about the history, financial support, composition, services available, and staff of seven actively maintained union catalogs in the Southeast. Sources of additional information were also provided. In the introduction to the Guide, the seven union catalogs were compared as to variations in such areas as "fundamental purpose or nature, administering institutions, and methods of operation."[31]

Development of a Machine Form Union Catalog for the New England Library Information Network (NELINET): Final Report was a thorough, ambitious study published in 1970. Part I surveyed union cataloging activity in New England, past, present, and prospective. It was found:

> (1) that New England's collective union catalog needs had not been specified, particularly with respect to the possibilities of machine application; (2) that some of the crucial data and analysis requisite for such specification was unavailable; and (3) that, in the absence of such specifications and data, unequivocal evaluation of the relative merits of differing union catalog approaches and of different kinds of machine form catalogs (including NELINET's) had to be held in abeyance.[32]

Three union catalog configurations were studied: the single regional union catalog; the combination of six state union catalogs; and the random combination of state and/or interinstitutional union catalogs. It was concluded that the last-named form was "the one likeliest to be encountered in the immediate future."[32] It was recommended that "a region-wide survey of all aspects of union cataloging in New England...with particular attention being given to the interrelationships among machine-form catalog, union catalog, and library network theories, be undertaken."[33]

Part II of the NELINET study was concerned with systems design and programming for machine-form and printed union catalogs. Development of the essential capabilities for the project was accomplished by:

(1) a study of machine-form union catalog needs; (2) file design for both present and projected needs; (3) the development of techniques and programs for collecting, storing and updating library holdings data; (4) the development of programs to produce a printed union catalog in which the Library of Congress card number is used as the identifying element.[34]

Also published in 1970 was An Investigation of More Effective Means of Organization and Utilization of the Nashville Union Catalog.[35] The purpose of the investigation was to determine the feasibility of expanding the Nashville Union Catalog into a regional catalog, and of making it the nucleus of a bibliographic center for Tennessee. More specific objectives included: study of the catalog and its format possibilities; the optimum level of inclusiveness, both for libraries and holdings; organization of an operation involving many libraries of different types; funding problems; and access to the union catalog and service from it. It was concluded that the Nashville Union Catalog should remain in card form for the present, and that it should be expanded to include all cataloged items of all types of libraries. Computerization of current acquisition records, based on the MARC II format, was recommended if funding could be obtained. Expansion of the union catalog operation into a bibliographic center, eventually for the entire state, was seen as an effective means of improving access to library resources. Development of the system to interface with other regional and national information networks was a final goal of the project. An extensive bibliography provided references for general background reading, computerization of library catalogs, state surveys and plans, and union catalogs and bibliographic centers.

An alternative view of Tennessee's bibliographic control problems was presented in 1971 by Augustus Kuhlman,[36] who expressed the opinion that a state union catalog would be an extremely costly operation, and that alternative solutions should be considered. Development of regional resource centers in Tennessee, combined with use of the National Union Catalog, Union List of Serials, New Serial Titles, existing union catalogs and lists within the state, and supplementary bibliographic tools, was seen as a substitute, and possibly more effective, solution.

The North Carolina Union Catalog: An Examination and Evaluation, by Eugene Neely, appeared in 1971.[37] This detailed analysis of the North Carolina Union Catalog described its history, physical characteristics, use, and extent of coverage. Based on findings of the study, proposals for the development of the catalog were offered. A computer-produced North Carolina Union Catalog in book form was seen as desirable, following updating and expansion of the present card file. The union catalog's role in the proposed North Carolina Libraries Services Network was considered to be of potentially great significance.

A "Computer-Based Union Catalog Project for the University of Missouri" was described in 1972.[38] The project, to produce machine-readable records

for the approximately 1.4 million books held by one or more of the four campuses of the University of Missouri, used an already developed computer program, CONSIDER. Problems of data collection and coding, and the costs involved, were outlined. Access to the union catalog, via CRT and TWX, was expected to provide improved and faster service to library users on all four campuses.

UNION CATALOGS AND LISTS AT THE NATIONAL LEVEL

The Library of Congress has led in the development of national union catalogs and lists since the beginning of the twentieth century. Augmenting their efforts have been the projects of such professional groups as the ALA and commercial publishers. A review of the background and present state of union catalogs and lists at the national level should provide the necessary perspective for consideration of their future development.

THE NATIONAL UNION CATALOG

Maintained in card form by LC since 1901, the National Union Catalog (NUC) is the most comprehensive record in existence of holdings, primarily of monographic materials, available in major research libraries in the United States and Canada. Presently, over 950 libraries are cooperating in this listing. The majority are university libraries, although special libraries and other libraries with unusual or rare materials to report are included.

The NUC, essentially restricted to main entries, was available only as a card file at the Library of Congress until 1956. During the first quarter century of its existence, only the Library of Congress and a few other large U.S. libraries (Boston Public Library, Harvard, John Crerar, New York Public Library, Newberry, University of Illinois, and University of Chicago) contributed to the NUC. Although the file contained 2 million entries by 1926, it was generally felt to be inadequate as a tool for locating research books.

Expansion of the NUC proceeded rapidly from 1927-32, when $250,000 was made available for the purpose by John D. Rockefeller, Jr. "Project B," as it was called, resulted in 6,344,356 cards being added to the main file. From 1932 until 1943, funds available were severely curtailed. However, 3,355,941 cards were added during this period.

In 1943, appropriations for the NUC were again increased, and the file was expanded by the addition of the contents of the regional union catalogs in Cleveland and Philadelphia. Later major additions included: the Yale University Library Catalog; the North Carolina Union Catalog; and the University of California shelf list. By 1967, the NUC contained 16 million cards, recording approximately 10 million titles and editions.[39] Growth of the NUC continues at a steady pace, with approximately 280,000 main entries added in 1968, 300,000 in 1969, and 340,000 in 1970.[40]

As long as the NUC existed only as a card file, access to its contents by other libraries and individual scholars was limited. Interest in making this important national record more widely available led to consideration of producing the current catalog in book form.

In January 1956, the Library of Congress Catalog--Books: Authors was expanded from a listing of titles represented by LC printed cards to include titles and holdings of books of 1956 and later imprints reported by some 500 other North American libraries. The expanded publication was renamed The National Union Catalog: A Cumulative Author List. For the first time, location of titles was indicated by library symbols. The National Union Catalog in book form has appeared without interruption since 1956. The pattern of publication established is nine monthly issues, three quarterly cumulations, and annual and quinquennial cumulations.

Since June 1965, The National Union Catalog--Register of Additional Locations has also been published by the Library of Congress. Annual volumes note additional locations for titles reported after annual or quinquennial cumulations of The National Union Catalog have been published.

The National Union Catalog: A Cumulative Author List established a current printed record for post-1956 imprints represented by LC printed cards and titles reported by other U.S. libraries. The National Union Catalog, 1952-1955 Imprints was completed in 1961. This 30-volume set was compiled as a test of the feasibility of converting the entire NUC to book form. Success of the project resulted in the decision to proceed with The National Union Catalog, Pre-1956 Imprints. With Mansell Information/Publishing Limited in London selected for the massive undertaking, publication began in 1968. When completed in 1979, Pre-1956 Imprints will contain some 13 million entries in 610 volumes of approximately 700 pages each. Each entry is being assigned a unique identifying number.

Both the current National Union Catalog and The National Union Catalog, Pre-1956 Imprints contain main entries, plus necessary crossreferences and selected added entries for books, pamphlets, maps, atlases, and music scores. Entries are included for all such works cataloged by LC, and for monographic publications reported by other United States libraries. Serial publications are included only if represented by LC printed cards.

Entries for music and sound recordings are excluded as they appear in The Library of Congress Catalog: Music and Phonorecords. Entries for motion pictures and filmstrips, listed in The Library of Congress Catalog: Motion Pictures and Filmstrips, are also excluded. It should be noted, however, that, while valuable for bibliographic and reference purposes, neither of the above publications is a union catalog.

In the current National Union Catalog, entries are included for materials written in the Arabic, Cyrillic, Gaelic, Greek, Hebraic, Roman and Indic alphabets, and in Chinese, Japanese, and Korean characters. Reports from other libraries in the Roman, Greek, Gaelic, Cyrillic, and Hebraic alphabets are included. In Pre-1956 Imprints, only works in the Latin, Greek or Gaelic alphabets are generally included. Works in Cyrillic, Arabic, Hebrew, Chinese, Japanese, Korean, Indic, and all other non-Latin characters are included only if represented by LC printed cards.

Supplementing the National Union Catalog compilations issued by The LC are two privately produced sets. Library of Congress and National Union Catalog Author Lists, 1942-1962: A Master Cumulation was published in 152 volumes between 1969 and 1971 by Gale Research Company in Detroit, Michigan. This cumulative author list includes entries from: Catalog of Books Represented by Library of Congress Printed Cards--Supplement (1942-1947); The Library of Congress Author Catalog, 1948-1952; The National Union Catalog: A Cumulative Author List, 1953-1957; and The National Union Catalog: A Cumulative Author List, 1958-1962.

National Union Catalog, 1956 Through 1967, begun in 1970, is being published in 120 volumes. This 12-year catalog is a compilation in one alphabet of the 1958-62 and the 1963-67 quinquennial cumulations of the National Union Catalog, with a key to additional locations through 1967. A unique identifying number has been assigned to each title. Since 1956-57 imprints were repeated in the 1958-62 cumulation, this set serves as a continuation of The National Union Catalog, Pre-1956 Imprints.

A different access approach to the current National Union Catalog is offered in the LC Card Number Index to the National Union Catalog, compiled monthly with quarterly cumulations. Indexes are also available for the 1958-62 and 1963-67 quinquennial cumulations, and for the 1968, 1969, and 1970 annual cumulations of the National Union Catalog. Primarily useful for obtaining cataloging information, the LC Card Number Index gives exact location of National Union Catalog entries in LC card numerical sequence.

As bibliographic records of all important monographic works published since 1901, the current National Union Catalog and Pre-1956 Imprints are providing impressively comprehensive coverage. As national union catalogs, their coverage does not approach this degree of completeness, nor is it intended to do so.

Within the scope limitations described, coverage is complete for all cataloged works in the Library of Congress collections. The University of Chicago Library, Harvard University Library, Yale University Library, the John Crerar Library, and the New York Public Library have also endeavored to report all cataloged items in their collections. Most other participating libraries have reported their holdings selectively. The basis for selection is given in the introduction to The National Union Catalog, Pre-1956 Imprints:

> The basis for selection has been the reporting library's own guess as to whether or not the work was likely to be held by any, or many, other libraries. Some libraries, as a matter of routine, did not report any item they acquired if it was represented by a Library of Congress printed card at the time they acquired it...there are probably many works entered in [the National Union] Catalog with only one or two locations shown that could in fact be found in several other libraries.[41]

In addition to self-imposed restrictions in reporting to the National Union Catalog, many of the contributing libraries are, by request, only submitting records for certain types of materials (e.g., products of local presses, non-American publications, and nontrade publications).

In attempting wide coverage of all important monographic works available to scholars and research workers in the United States and Canada, the National Union Catalog does not necessarily provide balanced coverage for any given geographical area. (See Appendix A for California libraries contributing to the National Union Catalog.) A further limitation is the emphasis on holdings of research, university, and selected special libraries. Understandably, only very large public and college libraries are generally included. This means, however, that the National Union Catalog is of limited value to library users outside the university and research community. In addition, the cost of the catalogs precludes their acquisition by many smaller libraries.

The need for a subject approach to the National Union Catalog has been felt for some time. However, the task becomes increasingly formidable with the passage of time. It has been suggested that The Library of Congress Catalog--Books: Subjects could be expanded to serve as an index to the current National Union Catalog.[42] Publication of a separate Index to provide a current subject bibliography to all materials listed in the National Union Catalog has also been considered.[43] Presently, however, no plans exist for implementing either of these proposals.

SATELLITES OF THE NATIONAL UNION CATALOG

The National Union Catalog of Manuscript Collections has been compiled by the Library of Congress since 1962. The first volume covered work done from 1959 through 1961, with subsequent compilations appearing annually. The catalogs contain reproductions of cards describing manuscript collections housed permanently in U.S. repositories open to researchers. The 1969 edition brought the total number of collections described to 25,145 with 758 repositories having reported their holdings.[44]

There are no limitations on the time, place of origin, or subject material in the collections reported to The National Union Catalog of Manuscript Collections. Entries are arranged alphabetically by repository, and under each repository by collection. Name and subject indexes are cumulated, with a combined index for the 1963 through 1966 catalogs appearing in the 1966 volume, and for the 1967 through 1969 catalogs in the 1969 volume. Both originals and reproductions of manuscripts are included. For each entry, number of items in the collection, physical description, scope and content, location, limitations on access, and a unique identifying number are given.

The National Register of Microform Masters has been compiled annually by LC since 1965. Only master microforms--those retained solely for the purpose of making copies--are listed. Beginning with the 1970 edition, titles are arranged alphabetically by main entry. Previous editions were arranged numerically by LC card number. For each entry, form of the master and loca-

tions are indicated (for U.S. and Canadian libraries, and for commercial producers). The Register includes entries for domestic and foreign books, pamphlets, serials, and foreign doctoral dissertations. Approximately 166 libraries and producers reported holdings to the 1970 edition.

The first edition of Newspapers on Microfilm was compiled by LC in 1948. The sixth edition, published in 1967, contained approximately 21,700 entries (4,640 foreign newspapers from 136 countries, and 17,100 domestic entries). Both negative and positive microfilms of newspapers were included, with locations indicated. Approximately 668 U.S. and Canadian libraries and 66 commercial sources reported holdings to the sixth edition. Entries were arranged geographically by place of publication with frequency and inclusive dates listed under each title.

An earlier compilation, still valued for its comprehensive listing, is American Newspapers, 1821-1936: A Union List of Files Available in the United States and Canada, edited by Winifred Gregory under the auspices of the Bibliographical Society of America, and published by H.W. Wilson in 1937. Exact holdings of newspapers in nearly 5,700 depositories (libraries, county courthouses, newspaper offices, and private collections) were listed.

A recent nationwide listing, although restricted in scope, was Latin American Newspapers in United States Libraries. This union list was compiled in the Serials Division of the Library of Congress by Steven Charno, and published for the Conference on Latin American History by the University of Texas Press in 1968. Approximately 5,500 Latin American newspapers held by 70 reporting libraries were listed. Arrangement was by place of publication, first by country, then by city. Within each city, arrangement was alphabetical by title. For each entry, title, periodicity, date of establishment, and supplemental data were given when available. Locations and holdings information followed for both original and microfilm copies.

The Philadelphia Bibliographical Center and Union Library Catalogue was responsible for the Union List of Microfilms, first published in 1942. The final edition was the Cumulation 1949-1959, published in 1961. More than 52,000 entries for microfilm accessions reported by 215 libraries in the United States and Canada from July 1, 1949 through July 31, 1959 were included. The 1951 Union List of Microfilms, Revised, Enlarged and Cumulated Edition covered the earlier period, back to 1942. Newspapers were excluded from the Union List of Microfilms, as were theses from American universities and certain categories of manuscripts. For each entry, bibliographical information and locations of originals, master negative, negative and positive microfilms were given.

The LC's Division for the Blind compiled a Union Catalog of Hand-Copied Books in Braille in 1955. Locations of copies in U.S. libraries were indicated for the more than 15,000 titles listed. A Supplement was issued in 1960.

NATIONAL UNION LISTS OF SERIALS

The Union List of Serials in Libraries of the United States and Canada, third edition, was edited by Edna Titus and published in 1965 in five volumes. Under the sponsorship of the Joint Committee on the Union List of Serials, with the cooperation of the Library of Congress, and funded by a grant from the Council on Library Resources, Inc., it was a comprehensive listing of 156,000 serial titles which began publication before 1950. Locations of holdings in 956 libraries (891 in the United States and 65 in Canada) were given.

The first edition of the Union List of Serials, published in 1927, contained entries for 75,000 serial titles with locations in 225 libraries. The second edition, published in 1943, listed 115,000 titles with locations in 650 libraries. An excellent summary of the history of the Union List of Serials was given by Howard Rovelstad, Chairman of the Joint Committee on the Union List of Serials, in the preface to the third edition.

The third edition incorporated entries from the second edition and its two supplements (January 1941-December 1949), additions and changes in holdings of titles in cooperating libraries, revision and correction of earlier entries, and the addition of a selected number of new titles which began publication before 1950, but which had not been previously included.

Certain classes of serials were excluded from the Union List of Serials: government publications (except periodicals and monographic series issued by governments); administrative reports of societies, universities, corporations, etc.; almanacs, gift books; American newspapers; English and other foreign newspapers published after 1820; law reports and digests; publications of agricultural and other experiment stations; publications of local, religious, labor, and fraternal organizations, boards of trade, chambers of commerce; publications of national and international conferences and congresses, etc.; house organs (unless of technical or scientific value); alumni, undergraduate and intercollegiate fraternity publications; trench papers; all titles having a highly limted or ephemeral value; and United Nations publications.

Policy restrictions for the third edition included: the listing of additional locations for new serial titles acquired by cooperating libraries since the second edition and supplements only for titles not commonly held; generally limiting to ten the number of locations included for a given title. Entries in the Union List of Serials were arranged alphabetically by latest title, with crossreferences from earlier and variant forms. Exact holdings in reporting libraries were given.

No further editions of the Union List of Serials are contemplated. New Serial Titles, A Union List of Serials Commencing Publication After December 31, 1949 is, in effect, the continuing supplement to the third edition of the Union List of Serials. However, "it should be noted that this updating was a compromise in that it reported holdings for new titles by a limited number of libraries and did not reflect the changing national picture of

retrospective and current holdings of serials across the country."[45]

New Serial Titles is prepared by the Library of Congress under the sponsorship of the Joint Committee on the Union List of Serials. Its forerunner was Serial Titles Newly Received, published by LC from 1951 through 1952. Since January 1953, New Serial Titles has provided coverage for serials first published after December 31, 1949, and received by LC and cooperating U.S. and Canadian libraries. A total of 809 libraries were reporting as of 1971.

New Serial Titles appears in eight monthly issues, four quarterly issues, and annual cumulations. The latter are cumulated over five- or ten-year periods. (Cumulations have been issued for the period from 1950-60, from 1961-65, and from 1966-69.) Entries are listed alphabetically by title, with bibliographical information and Dewey Decimal Classification numbers given for each entry. Holdings information is provided for each location listed.

A subject approach, by Dewey Decimal Classification, is provided in New Serial Titles--Classed Subject Arrangement, published monthly without cumulation. A Subject Index to New Serial Titles 1950-1965 was published by Pierian Press in 1968. This work cited the location in New Serial Titles 1950-1960 and New Serial Titles 1961-1965 of all Dewey numbers, so that once a desired subject and its corresponding Dewey number were determined, all the serials with that number could be retrieved.

Excluded from New Serial Titles are: newspapers; looseleaf publications; books in parts; municipal government serial documents; publishers' series, motion pictures; filmstrips; and phonorecords. However, certain categories of serials excluded in the third edition of the Union List of Serials are included in New Serial Titles: bulletins; house organs; annuals; foreign government serial documents; administrative reports; local publications; college publications; and serial publications of national and international conferences and congresses.

PROSPECTS FOR FUTURE EXPANSION OF NATIONAL UNION CATALOGS AND LISTS

Interest in expanding coverage of union catalogs and lists at the national level has been renewed by recent advances in automation technology. In evaluating the uses of machine-readable data, Henriette Avram noted: "Efficiently designed and implemented technical processing centered about a computer-based data bank should...[facilitate] the production of union catalogs."[46]

The National Advisory Commission on Libraries, forerunner of the present National Commission on Libraries and Information Science, devoted considerable attention to the impact of computer technology on national bibliographic problems. Magnetic tape, used by LC for distribution of MARC II records, was seen as possessing a number of advantages: "It can be constantly updated;

it can be restructured in several different ways to facilitate different search strategies; it can be used to make humanly readable microform catalogs, and two or more tapes can be automatically merged to produce a union catalog."[47] For development of a machine-readable national union catalog, the commission recommended the merging of individual files as they are developed by libraries throughout the country. The availability of MARC tapes was viewed as a strong standardizing influence, insuring compatibility between machine-readable data bases.

A plan proposed by the commission for a prototype network of regional libraries defined the role of union catalogs and lists:

> The system of regional libraries suggested would maintain extensive and detailed union catalogs and union lists of all library materials held in local libraries. From these catalogs and lists, a selection could be made for the compilation of a broader-based National Union Catalog....For tasks of this magnitude to be done at all, it appears imperative that the catalogs and lists be produced in machine-readable form. If this were done, systems could be developed to exploit several important capabilities. The catalog could be interrogated directly through electronic communications...individual libraries could readily create special subsets of the catalog by subject or other kind of access for their own purposes; and, most importantly, the catalog could serve as a basic tool for libraries throughout the country to locate various kinds of materials for their users in a timely manner.[48]

Prospects for improved national coverage of the serial literature appear in several recent developments. Planning, development, and implementation of the National Serials Data Program has been the responsibility of the National Libraries Task Force on Automation and Other Cooperative Activities since 1967. Established by the directors of the Library of Congress, the National Library of Medicine, and the National Agricultural Library, the task force is under the direction of the Association of Research Libraries. A major goal of the task force is the development of a machine-readable data base to be used in a union list of the scientific and technical serials holdings of the three national libraries. Aiding in this project, Serials: A MARC Format was published by LC in 1969. It is hoped that the project will also "serve as a test-bed for continuing investigations into the complex problems involved in establishing automated controls over serial literature."[49]

Two additional systems for automated union listing of scientific and technical serials also have potential for wider national application. ACCESS, published by the Chemical Abstracts Service since 1969, uses a computerized data base to provide location information for papers covered by Chemical Abstracts.[50] The Union Catalog of Medical Periodicals, developed by the Medical Library Center of New York, uses electronic data processing

equipment for compilation and maintenance. Master files stored on magnetic tape are kept up to date by the input of new data and instructions for the deletion of obsolete information.[51] The existing Union Catalog of Medical Periodicals data base is being used by the National Library of Medicine in the development of a national union list of biomedical serials, and for regional listings in its Regional Medical Library Network.[52]

A related development, which will ultimately facilitate control of the serial litarature at all levels, is the assignment of standard numbers to serial titles. The Library of Congress has worked closely with the American National Standards Institute Committee Z-39 on Library Work, Documentation, and Related Publishing Projects to develop the American National Standard for Identification Numbers for Serial Publications.[49]

UNION CATALOGS AND LISTS IN CALIFORNIA

The following discussion of union catalogs and lists in California can best be considered within the framework of guidelines presented in "The California Library Network, A Master Plan" adopted by the California Library Association in December 1971:

> Effective sharing of resources and services among cooperating libraries requires that each library be as well informed as possible about the collections of other libraries. Only when the knowledge of library holdings becomes widely available can inter-library loan requests, for example, be directed quickly and accurately to the best sources, and only when readers can consult the subject catalogs of libraries other than their own can they discover the fuller range of resources that might be requested. Comprehensive bibliographical control is one of the keys to total library services, and all library systems should strive to achieve it through such means as: (1) system-wide union catalogs of the monographic holdings of major library units, (2) system-wide union lists of serial publications, especially periodicals and newspapers, (3) the distribution in book form of the catalogs of individual libraries or of library systems as a whole, (4) maintenance and, when possible, publication of statewide union catalogs and lists, and (5) publications that describe in general terms the fields of strength of individual libraries, library systems, and research libraries. The achievement of bibliographic control, drawing upon national resources, such as MARC tapes, will also be greatly facilitated by the establishment of computer-based processing centers, especially a statewide center at the State Library that is capable of producing book-form catalogs of its own collections, of individual libraries, of library systems, and

> of special subjects and types of materials for wide distribution throughout the state.[53]

THE CALIFORNIA UNION CATALOG

The California Union Catalog was established as a card file at the California State Library in 1909, and is the oldest regional union catalog in the United States. Originally intended to be a union list of periodicals in California libraries, it was soon expanded to include book holdings of California city and county public libraries. From 1914 until the program was discontinued in 1947, LC depository cards were included in the Union Catalog.

At the present time, the California Union Catalog contains 2,087,424 cards in its main file, representing the holdings of 81 participating libraries.[54] Main entries for adult books form the bulk of the Union Catalog, although entries for children's book acquisitions from twelve selected libraries are included. A breakdown of the participating libraries shown 75 county, district, and city public libraries, two special libraries (Hewlett-Packard and Walt Disney Studio), and four university libraries. In the last category, the University of Southern California sends cards for their Farmington Plan books and pre-1800 acquisitions. Stanford University and the Hoover Library send cards which they have prepared themselves. The University of California entries in the Union Catalog cover the period from 1915 to 1950 only. (For a list of the public libraries contributing to the California Union Catalog, see Appendix B.)

Maintained by the Union Catalog Unit, Catalog Section of the State Library's Technical Services Bureau, the California Union Catalog has not been immune to the difficulties experienced by many regional union card catalogs in this country. Filing and editing work has periodically fallen behind, with sizable backlogs resulting. In the 1953-54 fiscal year, special funds were appropriated to rehabilitate the Union Catalog. Library of Congress depository cards were pulled, and filing of a backlog of 343,345 cards contributed by California's libraries was completed.[55] In 1972, the California Union Catalog was again in need of major rehabilitation. A backlog existed of 415,531 cards to be filed, and 124,921 withdrawals to be made.[56]

A further major problem of the Union Catalog is the lack of a Union Catalog editor. However, funds are available to fill this senior librarian position (vacant since 1968) and recruitment efforts are being made. Work is presently being handled by a senior clerk and two assistant clerks.

In spite of such vicissitudes, the California Union Catalog is generally regarded as a valuable bibliographic tool:

> Out of 107,000 inter-library loan requests received in the 1971-1972 fiscal year, according to statistics of the State Library's Reference Section, approximately forty percent were filled from the State Library's resources,

> and another forty to fifty percent were located in the Union Catalog. Since the State Library has been designated as a research center for the California network of libraries and thus providing resources or information as back-up to the collections of libraries throughout the state, the Union Catalog will continue to be an indispensable bibliographic tool.[57]

As mentioned above, various proposals have been considered for producing the California Union Catalog in book form. Another study by Tauber, conducted in 1965,[58] favored publication of a list of special subjects and collections, with location of materials in California libraries, in lieu of a union catalog in book form. However, Tauber suggested that a combined Union Catalog-State Library Catalog in book form, with a 1960 cut-off date, might be useful.

Cartwright and Shoffner's 1967 study[59] recommended publication of the two catalogs in separate book form compilations produced with the aid of computer technology. The Automation Project Office at the California State Library is now proceeding with production, in book form, of a Catalog of Books in the California State Library. BIBCON 360, a "general purpose data management system for creating, manipulating, formatting and outputting of MARC structured bibliographic records from catalog card input data"[60] is being used.

Conversion of the California Union Catalog to book form has been assigned a low priority by the Automation Project Office, primarily due to the tremendous cost of converting its more than 2 million entries to machine-readable form. The project is considered feasible, however, for implementation within the next decade. Completion of the RECON Project at the Library of Congress, access to the machine-readable data base being developed at the University of California, and the experience gained through present automation projects at the state library, would all contribute to production of a book form California Union Catalog.[61]

THE CALIFORNIA UNION LIST OF PERIODICALS

The Automation Project Office at the California State Library began work January 1, 1972 on a California Union List of Periodicals. This comprehensive listing, based on the BIBCON 360 file management system programs for processing serials data, will ultimately include the periodical holdings of 1,200 public libraries and 55 community college libraries.

Automatic Field Recognition, a program for creating MARC structured records from unedited input data, is being used. It is similar to the Format Recognition Process developed at LC for MARC records, and shares the advantage of reducing the cost of creating machine-readable records by eliminating substantial portions of the manual editing process.

Six cycles, of approximately 200 libraries each, are planned for completion of the California Union List of Periodicals. A Checklist[62] of 20,000 periodical titles was circulated to the first 200 libraries in June 1972. Based on these returns, a first printout of the Union List is now being produced. In addition to periodicals (both living and ceased), newspaper records are included. No limitations are placed on the physical format of materials reported.

PROJECTS AT THE UNIVERSITY OF CALIFORNIA

The Institute of Library Research at the University of California in Berkeley has, since 1965, been involved in a task force project to develop mechanized systems for application in the libraries of the nine University of California campuses. A major aspect of the project has been computerized production of the University of California Union Catalog Supplement 1963-1967, now being published in 65 volumes of approximately 50,000 pages. The multicampus catalog includes all acquisitions cataloged since publication of the UCLA Dictionary Catalog of the University Library 1919-1962 (129 vols.) and the University of California, Berkeley, Author-Title Catalog (115 vols.).

The Union Catalog Supplement contains 800,000 titles which are stored in a machine-readable file of 80 magnetic tapes. The machine file, which is compatible with the MARC format, was expanded to provide 3.2 million access (filing) points for the 800,000 titles included. Automatic Field Recognition was used to create the records. Entries in the Supplement are in two main sections: author-title and subject. Total cost of the Supplement project was approximately $1 million. Preparation of a 1967-1972 Union Catalog Supplement has already begun, with 1.7 million cards now receiving preliminary processing.[63]

A second major project of the Institute of Library Research is production of the University of California Union List of Serials. Machine files from all nine campuses and the Radiation Laboratory were merged in the five-volume Preliminary Edition published in December 1971. Machine records for the Union List are in the MARC format. Cost of producing the serials records is estimated to be one-third of that for producing monographic records. Because of the varying nature of the collections represented, there is little overlap expected between the University of California Union List of Serials and the California Union List of Periodicals being produced by the state library.

UNION CATALOGS AND LISTS IN CALIFORNIA'S PUBLIC LIBRARY SYSTEMS

The 1963 passage of California's Public Library Services Act was a major stimulus to the formation of public library systems in the state. Administration of the state aid program is the responsibility of the State Library's Library Consultant Services Office. At the present time, 132 of

the 192 public libraries in California are participating in 21 library systems.[64] However, funds appropriated under the Public Library Services Act (a total of $1 million for 1970-1971) have not kept pace with this rapid growth. Federal funds from the Library Services and Construction Act, also administered by the state library, have encouraged the growth of public library systems, and, through Title III, of intertype-of-library cooperative ventures.

In his 1965 survey of California public libraries, Lowell Martin recommended a structure of union catalogs in book form within the public library systems. He also suggested that the California Union Catalog at the state library expand its coverage at the specialized and research level as a supplement to the system union catalogs.[65]

The 1969 Nelson Associates survey, Public Library Systems in the United States, also emphasized the importance of union catalogs for public library systems. "Systems without at least some union catalog of holdings are unable to take good advantage of interloaning. The importance of a union catalog is very great to affiliates, since interlibrary loan ranks high among the reasons they give for satisfaction with the system."[66]

Unfortunately, due primarily to the costs involved and lack of adequate funding, implementation of these recommendations for system union catalogs in California has been uneven. For systems not possessing union catalogs, teletype querying of all member libraries for requested titles has provided a compromise solution. Union lists of periodicals, less complicated and costly to produce than union catalogs of monographic holdings, are more frequently found in California's public library systems.

The following review of union catalog and list activity is based on responses to a questionnaire mailed to the twenty-one California public library systems in September 1972, and, when possible, on personal inspection of the union catalogs and lists concerned. Since only fourteen systems returned the questionnaire, this account is undoubtedly incomplete. It does serve, however, to indicate forms and uses of union catalogs and lists at the system level.

Established in 1952, the Catalog of the Los Angeles County Public Library System pioneered in the development of book catalogs produced from a computer file. Issued annually with monthly supplements, the Catalog includes 350,000 titles located in 94 branches and 8 bookmobiles. It has replaced card catalogs in all branches. Current annual cost of the Catalog is $292,963. The Los Angeles County Public Library has also produced, since 1966, an annual Film Catalog in book form from a computer data base. Locations in the 94 branches are given for 1,300 16mm motion picture films.

Kern County Library System has maintained a union card catalog since 1911. The catalog, which now contains 110,000 titles, is kept up to date by weekly filing. Locations of materials in the system's 79 outlets is indicated for each entry. Since 1961, the Kern County Library System has also had

a card file and printed union list of periodical holdings. A total of 700 titles are included. The card file is updated regularly, and new editions of the printed list are issued every two to three years.

The Black Gold Cooperative Library System includes seven public libraries: Lompoc Public Library, Santa Barbara Public Library, Santa Maria Public Library, San Luis Obispo County Library, San Luis Obispo Public Library, Santa Paula District Library, and Ventura County and City Library. The Black Gold Cooperative Library System Catalog of Books was first published, in book form, in 1963. Adult books are listed in author-title and subject catalogs. Children's books are listed by author, title, and subject in the children's catalog. Locations for the more than 80,000 titles included are indicated with each entry. Quarterly cumulative author-title, subject, and children's catalogs are published for books currently added to system libraries. The entire cumulated catalogs, incorporating all additions and withdrawals, are reissued periodically.

The Black Gold Union List of Serials was first published in 1968. An LSCA Title III-funded project, the Union List includes serial holdings of system libraries and Moorpark College Library. Produced from computer printout, the Union List is revised on an irregular basis. Arrangement is alphabetical by title, with libraries and their holdings given for each entry. In addition to its location function, the Union List is also used for a program of cooperative acquisitions among participating libraries.

The Metropolitan Cooperative Library System includes twenty public libraries located in the following cities: Altadena, Azusa, Beverly Hills, Burbank, Covina, Downey, Glendale, Glendora, Monrovia, Monterey Park, Palos Verdes Peninsula, Pasadena, Pomona, Redondo Beach, Santa Fe Springs, Santa Monica, Sierra Madre, South Pasadena, Torrance, and Whittier. A union card catalog, established in 1966, contains main entries for 138,000 adult book titles. It is kept up to date by continuous filing. The Metropolitan Cooperative Library System Periodical Union Catalog is produced from computer files on an annual basis. Arrangement is alphabetical by title, with libraries and their holdings given for each of the 4,000 titles listed. Newspapers are also included. The Periodical Union Catalog is used for cooperative acquisitions as well as for location information.

The San Joaquin Valley Library System (Fresno County Library, Hanford Public Library, Kings County Library, Madera County Library, Tulare City Library, and Tulare County Library) has maintained a union card catalog since 1964. The catalog, which contains main entries for 74,328 monographic titles, is limited to books processed in the centralized processing center at the Fresno County Library.

The North Bay Cooperative Library System includes the following city and county public libraries: Calistoga, Healdsburg, Lakeport, Marin County, Mendocino County, Mill Valley, Napa City-County, Petaluma, St. Helena, Santa Rosa-Sonoma County, Sausalito, Solano County, Vacaville, and Vallejo. A union card catalog, established in 1969, contains main entries for 139,446 cataloged by the system processing center and by member libraries. The

union catalog, kept up to date by daily filing, is used for cooperative acquisitions and as a source of cataloging information in addition to its location function. The North Bay Cooperative Library System Union List of Periodicals was first published in 1962, and is kept up to date with annual supplements and new editions every three to four years. The current listing of 1,678 titles includes newspapers and periodicals in print or microform. In addition to its location function, the Union List is used for cooperative acquisitions.

The San Francisco Public Library System has published a Union List of Serials since 1968. A total of 9,651 titles of periodicals, newspapers, and selected documents are included. The printed list, produced by computer printout, is revised semiannually. Locations and holdings information are included for the following participating libraries: San Francisco Public Library and its Business Branch, San Mateo County Library, San Mateo City Library, Burlingame Public Library, Redwood City Public Library, Daly City Public Library, San Bruno Public Library, San Mateo County Mental Health Library, and San Mateo County Curriculum Library. Use of the Union List for centralized storage is expected in the near future. Originally funded by a federal grant, the Union List is now part of the regular San Francisco Public Library budget.

The East Bay Cooperative Library System includes: Alameda County Library (12 branches), Alameda City Public Library (1 branch), Contra Costa County Library (22 branches), and Richmond Public Library (2 branches). A printed union catalog of adult titles available within the system has been produced, covering the period from 1964 to 1971. The catalog is published in four parts of two volumes each: Author Catalog; Title Catalog; Subject Catalog; and Book Catalog Register. The Register contains photographic reproductions of the catalog cards for all titles included in the union catalog, and is the source of full bibliographic information. A register location number for each entry is given in the other three parts of the catalog. The catalog is kept up to date by two quarterly supplements: Subject and Author/Title. Complete sets of the union catalog are placed in all cooperating libraries and their branches.

COOPERATION BETWEEN DIFFERENT TYPES OF LIBRARIES

Stimulated by the availability of LSCA Title III funds, and such professional guidelines as "The California Library Network, A Master Plan," libraries in the state have begun to experiment with intertype-of-library cooperation. In his 1967 study, Swank found: "'Access to bibliographical information about the resources of the several types of libraries is probably the greatest single problem in the development of systems under Title III.' Although union lists and catalogs exist, they are generally for a single library or type of library, and are not generally available to other types. The application of computer technology to the production of union catalogs is a promising development to meet this crucial need."[67]

An interesting project along these lines has been undertaken by a group of libraries in a five-county area in central California. Using LSCA funds, the six member libraries of the 49-99 Cooperative Library System, five academic libraries and six special libraries have converted their periodical holdings records into a computer-based union list. Union List of Serials, A List of Periodicals, Newspapers and Serials in the 49-99 Cooperative Library System Area, published in 1972, includes 6,672 titles. Libraries holding each title and the extent of their files are given. Publication of the Union List is being followed by a program of collection evaluation and development among the eighteen participating libraries.[68]

Based at the Los Angeles Public Library, the Information Center for Southern California Libraries (INFO) began operation in January 1971. Charter members included eighteen public libraries and library systems, university, college, and special libraries. Financial support is obtained from dues assessed member libraries on the basis of individual library budgets. INFO has as its purpose "to serve as a clearinghouse for information on access to the resources of libraries and research facilities in Southern California, and to aid implementation of the California Master Plan for Total Library Service."[69] A small union catalog of elusive materials has been developed by INFO, and a subject guide to special collections and resources of southern California libraries is also being compiled. INFO hopes to provide the cooperative mechanism for the eventual development of an areawide common master data base.

The potential exists for the development of union catalogs and lists including all types of libraries in other information networks now being established in California. Projects administered by the state library and funded by LSCA Title III are directed toward the establishment of a statewide network of all types of libraries. At present, however, most of these projects are in the formative stages, with preparation of union catalogs and lists deferred until operations are set on a more formal basis.

To be watched with interest is Black Gold Cooperative Library System's Total Interlibrary Exchange (TIE). This cooperative information system encompasses eighty libraries of all types in the Black Gold area. If continued on a permanent basis, TIE's effectiveness would undoubtedly be enhanced by the development of a union catalog and union list of serials for participating libraries.

A project ultimately planned to tie in with all types of libraries is the California Community Colleges Library Cooperative. This statewide network system consists of twelve regional Educational Resource Centers, each coordinating services for eight to ten community colleges.[70] Established to improve access to library materials, and to eliminate duplication in library holdings and operations, the cooperative has already compiled union lists of both periodicals and audiovisual materials.

OTHER UNION CATALOGS AND LISTS IN CALIFORNIA

Cooperative union listing of materials in special subject fields, or for limited geographical areas, has existed for some time in California. Committees of various professional library associations have been most active in this type of endeavor. California's academic institutions have been the sources of other compilations.

One of the earliest attempts at a union list in California was the Co-operative List of Periodical Literature in Libraries of Central California, published by the University of California as its Library Bulletin No. 1. The first edition of the Co-operative List was issued in 1880, and combined in one alphabet 1,000 periodical titles in nine libraries in San Francisco and vicinity. The second edition, in 1892, was expanded to include 1,900 titles in twelve libraries. The third edition, in 1902, covered the holdings of 4,700 titles in eighteen libraries.

The following bibliography illustrates the pattern and scope of this type of specialized union listing in California up to the present time:

Bay Area Business Librarians. Union List of Specifications and Standards. Sue Rugge, ed. Hayward, Bay Area Business Librarians, 1971. 27p.
Listed holdings of 27 special, public, and academic libraries in eleven Bay Area counties. Over 180 different associations' specifications or standards were included.

Berkeley Public Library. Union List of Newspapers in Bay Area Libraries. Berkeley, Berkeley Public Library, 1966. 10p.

_____. Union List of Telephone Directories in Bay Area Libraries. Berkeley, Berkeley Public Library, 1963. 27 l.

Bruno, Elisabeth W. "Horatio Alger in California," California Librarian, 28:233-40, Oct. 1967.
This bibliography of works by Horatio Alger gave locations in thirty-six California libraries and in the Library of Congress.

California Library Association. California Local History: A Bibliography and Union List of Library Holdings. 2d ed. Margaret Miller Rocq, ed. Stanford, Stanford University Press, 1970. 611p.
Listed more than 17,000 items concerned with California local history, with holdings in about 230 libraries (177 in California, 53 out-of-state) indicated.

California State College, Arcata, Library. Union List of Periodicals in California State College Libraries. Arcata, California State College, Arcata, Library, 1956. 231 l.

Drury, Clifford M. California Imprints, 1846-1876, Pertaining to Social, Educational, and Religious Subjects. Glendale, A.H. Clark, 1970. 220p.

1,099 books, pamphlets, broadsides, periodicals, newspapers, and manuscripts were described, annotated, and located in fifty-two libraries.

Graduate Theological Union Library. Union Catalog. Berkeley, Graduate Theological Union, 1972. unpaged

Included holdings of the Graduate Theological Union Library, certain affiliated and independent libraries, the canon law collection of the University of California Law School Library at Berkeley, and the religious materials of the Stanford University Library.

Greenwood, Robert. California Imprints, 1833-1862; A Bibliography. Seiko June Suzuki and Marjorie Pulliam, comps. Los Gatos, Talisman Press, 1961. 524p.

This union list located original copies of over 2,000 imprints in 364 libraries throughout the United States.

Music Library Association, Northern California Chapter. Union List of Music Periodicals in the Libraries of Northern California. C.R. Nicewonger, ed. Berkeley, Music Library Association, Northern California Chapter, 1965. 141 l.

Recorded holdings of twenty-four libraries.

Orange County Library Association. Union List of Expensive, Out-of-Print and Specialized Reference Books in Libraries in Orange County. 2d ed. Orange, Orange County Library Association, 1963. 185 l.

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Special Libraries Association, San Francisco Bay Region Chapter. Science-Technology House Journals. San Francisco, Special Libraries Association, San Francisco Bay Region Chapter, 1965. 31 l.

This union list recorded holdings of seventy-one company-published serials in twenty-two special libraries in the San Francisco Bay Region.

_____. Union List of Periodicals in the San Francisco Bay Region. 2d ed. San Francisco, Special Libraries Association, San Francisco Bay Region Chapter, 1952. 126p.

First edition was published in 1939, with a supplement published in 1942. Second edition included holdings of forty-two libraries. Newspapers are listed separately.

_____. Union List of Periodicals: Science-Technology-Economics. 2d ed. Stanford, Special Libraries Association, San Francisco Bay Region Chapter, 1971. 447p.

First edition was published in 1966. Second edition listed hold-

ings of 12,700 periodical titles in the fields of science, technology, and economics for seventy-eight special libraries in the San Francisco Bay Region. Annuals and proceedings of regularly held symposia were included.

Special Libraries Association, Southern California Chapter. Union List of Periodicals in Libraries in Southern California. 5th ed. Santa Ana, Professional Library Service, 1968. 458p.
Recorded holdings of 127 libraries for 33,000 titles. Special, academic, and public libraries were included.

Stanford University Library. Union List of Serials: Science and Technology. 4th ed. Stanford, Stanford University Library, 1972. 306p.
Included more than 7,000 scientific and technical serial titles currently received in the main library and twenty-two departmental libraries.

University of California, Berkeley, Library. A Union List of Selected Directories in the San Francisco Bay Region. Compiled by Carolyn L. Hale and Mary H. Lathe for the Reference Division of the University of California Library. Berkeley, University of California Press, 1942. 26p.

SUMMARY AND CONCLUSIONS

In spite of a history of cooperative efforts dating from the beginning of the twentieth century, union catalogs and lists have so far failed to realize their full potential, either at the national level or in California.

Nationally, even such monumental undertakings as the National Union Catalog, the third edition of the Union List of Serials in Libraries of the United States and Canada, and New Serial Titles have had to accept compromises in the comprehensiveness of their coverage.

In providing Machine-Readable Cataloging (MARC) information on magnetic tape, LC has established the necessary standards for the recording and transmission of bibliographic information in this form. The importance of this standardization cannot be overemphasized. Combined with the present state of computer technology and such projects as the National Serials Data Program, it offers the key to vastly improved coverage of bibliographic resources, both at the national level and within smaller geographical areas.

Tasks not yet considered, or held in abeyance because of their complexity, might now be considered. For example, the flexibility of machine data files greatly enhances the possibility of a subject approach to materials recorded in union catalogs. Development of some type of union listing for the newer media now found in libraries (e.g., audiovisual collections) would also be facilitated by the use of computers.

In California, patterns of bibliographic coverage have developed unevenly. Union catalogs and lists have appeared to meet specific, often isolated,

needs. At the same time, certain categories of library materials have been neglected. While eight of California's nineteen state college and university libraries report to the National Union Catalog, access within the state to the nearly 5 million volumes they contain is available primarily through the catalogs of the individual libraries. Until recently this has also been true for materials housed in the libraries of the junior college system. However, this situation is beginning to improve through the efforts of such centralized groups as the California Community Colleges Library Cooperative.

The problem is somewhat different among California's special libraries, as many do not open their collections to outside use. Among those that do, however, a valuable reservoir of research material exists. Some of this material is reported nationally and in union lists such as those prepared by state chapters of the Special Libraries Association. More comprehensive listing of these resources would serve to broaden the scope of California's bibliographic record.

The development of public library systems and, more recently, of inter-type-of-library cooperative networks in California holds promise for eventual statewide bibliographic coverage. The need is clear for centralized direction of these activities at the state level. Fully aware of its responsibilities in this area, the California State Library is making a masterful attempt to control the necessary growth. Future activities of its automated processing center may well include preparation of union catalogs for library systems and networks throughout California. This would provide far more uniform coverage than is now the case.

Publication of the California Union List of Periodicals will be a valuable addition to the state's bibliographic record. The flexibility of its machine-readable data base might be further exploited either to produce subsets of information for system and network union lists, or, by merging with compatible files such as the University of California Union List of Serials, to produce more comprehensive listings.

For monographic works, large files of machine-readable data compatible with the MARC II format are being created in the University of California's Union Catalog Supplement projects and in the production of book catalogs for the California State Library. The existence of such files greatly enhances the feasibility of creating a comprehensive union catalog for the entire state. In addition, selected data in these files could be incorporated into a machine-readable national union catalog.

For the total access to library resources envisioned in "The California Library Network, A Master Plan," the solution is too complex to be derived solely by direction at the national level. These efforts will continue to require attention at the state level, where sensitivity to local and area needs can be maintained. Furthermore, the desirability of the degree of comprehensiveness sought in California cannot be demonstrated for national listings.

Ideally, coverage by national union catalogs and lists will continue to expand on a selective basis, while more complete records of holdings and locations are developed in California. Interaction between the two would be assured by the use of compatible machine-readable data, and by coordinated planning to establish a viable relationship between state and national coverage.

"The end to be attained is that no book or manuscript should be out of reach--that we should be able to know where any book is to be found, and how it may be made accessible as easily as possible. You may think that is a little thing, but in reality it is a great thing."[71]

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APPENDIXES

A. CALIFORNIA LIBRARIES CONTRIBUTING TO THE CURRENT NATIONAL UNION CATALOG

Source: The National Union Catalog, August 1972, p. xi.

California State Library, Sacramento
  --Sutro Branch, San Francisco
Humboldt State College, Arcata
Arlington College, Arlington
Azusa Public Library, Azusa
Berkeley Baptist Divinity School, Berkeley
Church Divinity School of the Pacific, Berkeley
Franciscan School of Theology, Berkeley
Graduate Theological Union, Berkeley
Judah L. Magnes Memorial Museum, The Rabbi Morris Goldstein Library, Berkeley
Pacific Lutheran Theological Seminary, Berkeley
Pacific School of Religion, Berkeley
Starr King School for the Ministry, Berkeley
Saint Margaret's House, Berkeley
Honnold Library, Claremont (Houses the libraries of Pomona College, Claremont Men's College, Claremont Graduate School, Harvey Mudd College and serving Scripps College)
Southern California School of Theology, Claremont
St. John's Seminary, Camarillo
California Baptist Theological Seminary, Covina
Hughes Aircraft Company, Technical Library, Culver City
Fresno State College, Fresno
California State College, Fullerton
Los Angeles Public Library, Rufus B. Kleinsmid Central Library, Los Angeles
Los Angeles County Museum, Los Angeles
Immaculate Heart College, Los Angeles
Los Angeles County Law Library, Los Angeles
Los Angeles County Medical Association, Los Angeles
Occidental College, Los Angeles
California State College at Los Angeles
University of Southern California, Los Angeles
University of California at Los Angeles
  --William Andrews Clark Memorial Library
  --Law Library
  --Biomedical Library
  --Orientalia Library
Biola Library, La Mirada
Alma College, Los Gatos

California State College, Long Beach
St. Patrick's Seminary Library, Menlo Park
Stanford Research Institute Library, Menlo Park
Golden Gate Baptist Theological Seminary Library, Mill Valley
Los Angeles Baptist College and Theological Seminary, Newhall
San Fernando Valley State College, Northridge
Mills College, Oakland
St. Albert's College Library, Oakland
Pasadena College, Pasadena
Fuller Theological Seminary, Pasadena
Sierra College, Rocklin
Sacramento City Library, Sacramento
San Francisco Theological Seminary, San Anselmo
San Diego County Library, San Diego
San Diego State College, San Diego
San Francisco Public Library, San Francisco
Henry E. Huntington Library and Museum, San Marino
St. Mary's College
Stanford University Libraries
  --Hoover Institution on War, Revolution and Peace
  --Lane Medical Library
Rand Corporation, Santa Monica
University of the Pacific, Stockton
Stanislaus State College, Turlock
University of California, Berkeley
  --University of California, Davis
  --Law Library, University of California, Davis
  --Bancroft Library, Berkeley
  --East Asiatic Library, Berkeley
  --University of California, Irvine
  --Law Library, Berkeley
  --Medical Center, San Francisco
  --University of California, Riverside
  --University of California, San Diego (Includes Scripps Institution of Oceanography Library, La Jolla)
  --University of California, Santa Barbara
  --University of California, Santa Cruz (Includes Lick Observatory Library)
California Maritime Academy, Vallejo

B. PUBLIC LIBRARIES IN CALIFORNIA CONTRIBUTING TO THE CALIFORNIA UNION CATALOG

Source: The Catalog Section of the California State Library's Technical Services Bureau, Aug. 7, 1972.

Alameda County Free Library, Hayward
Amador County Library, Jackson
Berkeley Public Library, Berkeley
Butte County Library, Oroville
Calaveras County Library, San Andreas

Colusa County Free Library, Colusa
Contra Costa County Library, Pleasant Hill
El Dorado County Library, Placerville
Fresno County Free Library, Fresno
Glendale Public Library, Glendale
Glenn County Free Library, Willows
Hanford Public Library, Hanford
Humboldt County Library, Eureka
Imperial County Free Library
Inyo County Free Library, Independence
Kern County Library, Bakersfield
Kings County Library, Hanford
Lassen County Free Library, Susanville
Lompoc Public Library, Lompoc
Long Beach Public Library, Long Beach
Los Angeles County Public Library System, Los Angeles
Los Angeles Public Library, Los Angeles
Madera County Library, Madera
Marin County Free Library, San Rafael
Marysville City Library, Marysville
Merced County Free Library, Merced
Mill Valley Public Library, Mill Valley
Modoc County Free Library, Alturas
Monterey County Library, Salinas
Napa City-County Library, Napa
Oakland Public Library, Oakland
Orange County Public Library, Orange
Orange Public Library, Orange
Palo Alto City Library, Palo Alto
Pasadena Public Library, Pasadena
Petaluma Free Public Library, Petaluma
Placentia District Library, Placentia
Plumas County Free Library, Quincy
Auburn-Placer County Library, Auburn
Porterville Public Library, Porterville
Richmond Public Library, Richmond
Riverside Public Library, Riverside
Sacramento City-County Library, Sacramento
San Benito County Free Library, Hollister
San Bernardino County Library, San Bernardino
San Diego County Library, San Diego
San Diego Public Library, San Diego
San Francisco Public Library, San Francisco
Stockton-San Joaquin County Library, Stockton
San Luis Obispo County Free Library, San Luis Obispo
San Luis Obispo Public Library, San Luis Obispo
San Marino Public Library, San Marino
San Mateo County Library, Belmont
Santa Ana Public Library, Santa Ana
Santa Barbara Public Library, Santa Barbara

Santa Clara County Free Library, San Jose
Santa Cruz Public Library, Santa Cruz
Santa Maria Public Library, Santa Maria
Santa Paula Union High School Public Library District Library, Santa Paula
Santa Rosa-Sonoma County Public Library, Santa Rosa
Sausalito Public Library, Sausalito
Shasta County Library, Redding
Siskiyou County Free Library, Yreka
Solano County Free Library, Fairfield
Stanislaus County Free Library, Modesto
Sutter County Free Library, Yuba City
Tehama County Library, Red Bluff
Tulare County Free Public Library, Visalia
Tuolumne County Free Library, Sonora
Ukiah-Mendocino County Library, Ukiah
Vacaville Unified School District Library District Library, Vacaville
Vallejo Public Library, Vallejo
Ventura County and City Library, Ventura
Whittier Public Library, Whittier
Yolo County Free Library, Woodland

VITA

Clara Downs Keller received her B.S. degree from the University of Illinois in 1955 and her M.L.S. degree from California State University, San Jose in 1973.

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Final paper submitted September 1973

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